



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/756,776

01/14/2004

Koichiro Tanaka

0756-7239

3573

31780

7590

02/13/2006

ERIC ROBINSON

PMB 955

21010 SOUTHBANK ST.

POTOMAC FALLS, VA 20165

EXAMINER

UNELUS, ERNEST

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/756,776	Applicant(s) TANAKA, KOICHIRO	
	Examiner Ernest Unelus	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 31-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 31-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/14/04, 12/23/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I, claims 1-18, drawn to an apparatus for irradiation in the reply filed on 12/23/2005 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 31-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. (US pub. 20020121665) in view of Hiraishi et al. (US pat. 6,455,347).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

With respect to claims 1, 10 and 31, Kawasaki discloses an apparatus for irradiating a laser beam with a linear cross-section on a surface to be irradiated, said apparatus comprising:
a laser oscillator (1101); an optical system for uniforming an energy distribution of each of said plurality of laser beams and for processing each of said plurality of laser beams having different wavelengths from each other into said square or rectangular linear cross-section (see paragraph 0015 and fig. 3); means for moving an object to be irradiated relatively to said plurality of laser beams (see paragraph 0005); and a stage over which an object to be irradiated is disposed (see paragraph 0014). Kawasaki fail to disclose a laser oscillator for emitting a plurality of laser beams having different wavelengths from each other. However, Hiraishi teaches using a similar YAG based system for forming a thin film device, where the oscillator produces a plurality of lens having different wavelengths (col. 6, lines 31-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fundamental and harmonics, thus using a plurality of lens of different wavelengths because the formation of trenches requires these beams, as taught by Hiraishi (col. 6, lines 52-55).

With respect to claims 2, 3, 11, 12, 32, and 33, Kawasaki and Hiraisahi disclose everything as claimed above. In addition, Kawasaki discloses wherein said laser oscillator is a zigzag-slab-style YAG laser (see paragraph 0015 and fig. 3).

With respect to claims 4, 13, and 34, Kawasaki discloses everything as claimed above, including means for moving an object to be irradiated relatively to said plurality of laser beams. Kawasaki fail to clearly disclose wherein the object is a non-single crystal semiconductor film comprising silicon. The object being a non-single crystal semiconductor film comprising silicon is well taught by Hiraishi (see col. 5, lines 3-5). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawasaki's invention with Hiraishi's invention to maintain temperature control of a glass substrate during laser scribing, as Hiraishi discloses (see col. 2, lines 28-33).

With respect to claims 5-7, 14-16, and 35-37, Kawasaki discloses everything as claimed above, including plurality of laser beams having different wavelengths from each other. Kawasaki fail to disclose the plurality of laser beams comprise second and third harmonics, second and fourth, and third and fourth harmonics of a YAG laser beam. Plurality of laser beams having different wavelengths from each other comprise second and third harmonics, second and fourth, and third and fourth harmonics of a YAG laser beam is well taught Hiraishi (see col. 11, line 46-49 and col. 16, lines 56-57). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawasaki's invention with Hiraishi's invention

Art Unit: 2828

to maintain temperature control of a glass substrate during laser scribing, as Hiraishi discloses (see col. 2, lines 28-33).

With respect to claims 8, 17, and 38, Kawasaki and Hiraishi disclose everything as claimed above. In addition, Kawasaki discloses wherein each of said plurality of laser beams having different wavelengths from each other has a wavelength of 600 nm or less (see paragraph 0005).

With respect to claims 9, 18, and 39, Kawasaki and Hiraishi disclose everything as claimed above. In addition, Kawasaki discloses a load/unload chamber (1215); a transfer chamber (1210); a robot arm (1215); and a laser irradiation chamber (1206).

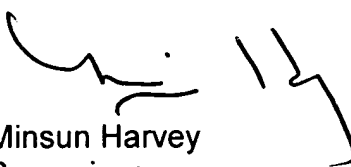
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-8596. The examiner can normally be reached on 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2828

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Minsun Harvey
Supervisor
Art Unit 2828

E.U.

